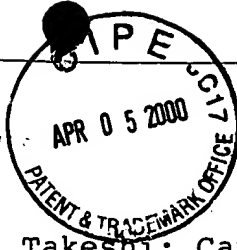


SEQUENCE LISTING



<110> Yano, Tetsuya; Nomoto, tsuyoshi; Imamura, Takeshi; Canon Kabushiki Kaisha

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Recombinant Plasmid, Transformed Microorganism,
Method for Degrading Chlorinated Aliphatic Hydrocarbon
Compounds and Aromatic Compounds, and
Method for Environmental Remediation

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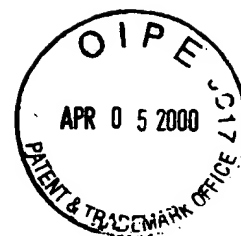
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| Asp | Tyr | Glu | Ile | Phe | Asp | Pro | Ser | Arg | Ser | Ala | Ile | Arg | Met | Ala | Asn | |
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| Trp | Tyr | Ala | Leu | Lys | Asp | Pro | Arg | Gln | Phe | Tyr | Tyr | Ala | Ser | Trp | Ala | |
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| Thr | Thr | Arg | Ala | Arg | Gln | Gln | Asp | Ala | Met | Glu | Ser | Asn | Phe | Glu | Phe | |
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| Val | Glu | Ser | Arg | Arg | Met | Ile | Gly | Leu | Met | Arg | Asp | Asp | Val | Ala | Ala | |
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cont

| | | | | | | | | | | | | | | | | |
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| Ile | Ala | Gln | Asn | Leu | Ala | Leu | Asp | Gly | Leu | Leu | Tyr | Pro | Leu | Val | Tyr | |
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| Asp | Arg | Phe | Val | Asp | Glu | Arg | Ile | Ala | Leu | Glu | Gly | Gly | Ser | Ala | Val | |
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| gcg | atg | ctg | acc | gcg | ttc | atg | ccc | gaa | tgg | cac | acc | gag | tcg | aac | cgc | 1248 |
| Ala | Met | Leu | Thr | Ala | Phe | Met | Pro | Glu | Trp | His | Thr | Glu | Ser | Asn | Arg | |
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| Trp | Ile | Asp | Ala | Val | Val | Lys | Thr | Met | Ala | Ala | Glu | Ser | Asp | Asp | Asn | |
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| cgc | gcg | ctg | ctc | gcc | cgc | tgg | aca | cgc | gac | tgg | tcc | gcg | cgc | gcc | gag | 1344 |
| Arg | Ala | Leu | Leu | Ala | Arg | Trp | Thr | Arg | Asp | Trp | Ser | Ala | Arg | Ala | Glu | |
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| gcg | gca | ctg | gca | ccg | gtg | gcg | gca | cgc | gcg | ctg | cag | gat | gcc | ggg | cgc | 1392 |
| Ala | Ala | Leu | Ala | Pro | Val | Ala | Ala | Arg | Ala | Leu | Gln | Asp | Ala | Gly | Arg | |
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| Ala | Ala | Leu | Asp | Glu | Val | Arg | Glu | Gln | Phe | His | Ala | Arg | Ala | Ala | Arg | |
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| Ser | Asp | Ala | Arg | Tyr | Ile | Asn | Ala | Leu | Lys | Leu | Phe | Leu | Gln | Gly | Val | | |
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| Asp | Glu | Leu | Arg | His | Tyr | Gln | Thr | Glu | Thr | His | Ala | Met | Ser | Thr | Tyr | | |
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| | | | | | | | | | | | | | | | | |
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| Glu | Gln | Asp | Pro | Asp 745 | Asn | Val | Pro | Ile | Val 750 | Gln | Arg | Trp | Ile | Asp 755 | Lys | |
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| Leu | Met | Phe | Pro | Ala | Pro | Phe | Cys | Leu | Pro | Leu | Pro | Pro | Asp | Met | Pro | | |
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| ttc | ggc | gcg | ctg | gcc | ggc | gac | gtg | ctg | ccg | ccc | gtc | tac | ggc | tat | cac | 3619 | |
| Phe | Gly | Ala | Leu | Ala | Gly | Asp | Val | Leu | Pro | Pro | Val | Tyr | Gly | Tyr | His | | |
| 1055 | | | | | 1060 | | | | | 1065 | | | | | 1070 | | |

| | |
|---|------|
| ccc gac ttc gcg aag atc gac tgg gat cgc gtc gag tgg ttc cgg tcg | 3667 |
| Pro Asp Phe Ala Lys Ile Asp Trp Asp Arg Val Glu Trp Phe Arg Ser | |
| 1075 1080 1085 | |
| ggc gag ccg tgg gcg ccg gac ccg gcg aag agc ctg gcc ggc aac ggc | 3715 |
| Gly Glu Pro Trp Ala Pro Asp Pro Ala Lys Ser Leu Ala Gly Asn Gly | |
| 1090 1095 1100 | |
| ctc ggg cac aag gac ctg atc agc ttc cgc acg ccc ggc ctc gac ggc | 3763 |
| Leu Gly His Lys Asp Leu Ile Ser Phe Arg Thr Pro Gly Leu Asp Gly | |
| 1105 1110 1115 | |
| ctc ggc ggc gcg agc ttc tgaccgccac gcggacgagc gaaccatc atg agc | 3815 |
| Leu Gly Gly Ala Ser Phe Met Ser | |
| 1120 1125 | |
| cac caa ctt acc atc gag ccg ctg ggc gtc acg atc gag gtc gag gaa | 3863 |
| His Gln Leu Thr Ile Glu Pro Leu Gly Val Thr Ile Glu Val Glu Glu | |
| 1130 1135 1140 | |
| gga cag acg atg ctc gat gcc gcg ctg cgc cag ggc atc tac att ccg | 3911 |
| Gly Gln Thr Met Leu Asp Ala Ala Leu Arg Gln Gly Ile Tyr Ile Pro | |
| 1145 1150 1155 | |
| cac gcg tgc tgt cac ggg ctg tgc ggc acc tgc aag gtc gcc gtg ctc | 3959 |
| His Ala Cys Cys His Gly Leu Cys Gly Thr Cys Lys Val Ala Val Leu | |
| 1160 1165 1170 | |
| gac ggc gag acc gat ccc ggc gat gcg aac ccg ttc gcg ctg atg gat | 4007 |
| Asp Gly Glu Thr Asp Pro Gly Asp Ala Asn Pro Phe Ala Leu Met Asp | |
| 1175 1180 1185 1190 | |
| ttc gag cgc gag gaa ggc aag gcg ctc gcg tgc tgc gcg acg ctg cag | 4055 |
| Phe Glu Arg Glu Glu Gly Lys Ala Leu Ala Cys Cys Ala Thr Leu Gln | |
| 1195 1200 1205 | |
| gcc gac acc gtg atc gag gcc gac gtc gac gag gag ccg gat gcg gaa | 4103 |
| Ala Asp Thr Val Ile Glu Ala Asp Val Asp Glu Glu Pro Asp Ala Glu | |
| 1210 1215 1220 | |
| atc atc ccg gtc agg gac ttc gcg gcc gac gtc acg cgc atc gaa cag | 4151 |
| Ile Ile Pro Val Arg Asp Phe Ala Ala Asp Val Thr Arg Ile Glu Gln | |
| 1225 1230 1235 | |

| | |
|--|------|
| ctc acg ccg acc atc aag tcg atc cgc ctg aag ctg tcg cag ccg atc | 4199 |
| Leu Thr Pro Thr Ile Lys Ser Ile Arg Leu Lys Leu Ser Gln Pro Ile | |
| 1240 1245 1250 | |
| cgc ttc cag gcg ggc cag tac gtg cag ctc gag att ccc ggc ctc ggg | 4247 |
| Arg Phe Gln Ala Gly Gln Tyr Val Gln Leu Glu Ile Pro Gly Leu Gly | |
| 1255 1260 1265 1270 | |
| cag agc cgc gcg ttc tcg atc gcg aac gcg ccg gcc gac gtc gcg gcc | 4295 |
| Gln Ser Arg Ala Phe Ser Ile Ala Asn Ala Pro Ala Asp Val Ala Ala | |
| 1275 1280 1285 | |
| acc ggc gag atc gaa ctg aac gtg cgg cag gtg ccg ggc ggg ctc ggc | 4343 |
| Thr Gly Glu Ile Glu Leu Asn Val Arg Gln Val Pro Gly Gly Leu Gly | |
| 1290 1295 1300 | |
| acg ggc tac ctg cac gag caa ctg gcg acg ggc gag cgc gtg cgc ctg | 4391 |
| Thr Gly Tyr Leu His Glu Gln Leu Ala Thr Gly Glu Arg Val Arg Leu | |
| 1305 1310 1315 | |
| tcg ggc ccg tac ggc cgc ttc ttc gtg cgt cgc tcg gcc gcg cgg ccg | 4439 |
| Ser Gly Pro Tyr Gly Arg Phe Phe Val Arg Arg Ser Ala Ala Arg Pro | |
| 1320 1325 1330 | |
| atg atc ttc atg gcc ggc ggg tcg ggg ctg tcg agc ccg cgc tcg atg | 4487 |
| Met Ile Phe Met Ala Gly Gly Ser Gly Leu Ser Ser Pro Arg Ser Met | |
| 1335 1340 1345 1350 | |
| atc gcg gac ctg ctc gca agc ggc gtc acc gcg ccg atc acg ctg gtc | 4535 |
| Ile Ala Asp Leu Leu Ala Ser Gly Val Thr Ala Pro Ile Thr Leu Val | |
| 1355 1360 1365 | |
| <i>a' cont</i> tac ggt cag cgc agc gcg cag gag ctc tac tac cac gac gaa ttc cgc | 4583 |
| Tyr Gly Gln Arg Ser Ala Gln Glu Leu Tyr Tyr His Asp Glu Phe Arg | |
| 1370 1375 1380 | |
| gcg ctg gcc gaa cgc cat ccg aac ttc acg tac gtg ccg gcg ctg tcc | 4631 |
| Ala Leu Ala Glu Arg His Pro Asn Phe Thr Tyr Val Pro Ala Leu Ser | |
| 1385 1390 1395 | |
| gaa ggc gca ccg cac gcg ggc ggc gac gtc gcg caa ggg ttc gtg cac | 4679 |
| Glu Gly Ala Pro His Ala Gly Gly Asp Val Ala Gln Gly Phe Val His | |
| 1400 1405 1410 | |

| | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| gac | gtc | gcg | aag | gca | cat | ttc | ggc | ggc | gac | ttc | tcc | ggg | cac | cag | gcg | 4727 |
| Asp | Val | Ala | Lys | Ala | His | Phe | Gly | Gly | Asp | Phe | Ser | Gly | His | Gln | Ala | |
| 1415 | | | | | 1420 | | | | 1425 | | | | | | 1430 | |
| tac | ctg | tgc | ggg | ccg | ccc | gcg | atg | atc | gac | gcg | tgc | atc | acg | acg | ctg | 4775 |
| Tyr | Leu | Cys | Gly | Pro | Pro | Ala | Met | Ile | Asp | Ala | Cys | Ile | Thr | Thr | Leu | |
| | | | 1435 | | | | | 1440 | | | | | 1445 | | | |
| atg | cag | ggg | cgc | ctg | ttc | gag | cgc | gac | atc | tat | cac | gag | aag | ttc | atc | 4823 |
| Met | Gln | Gly | Arg | Leu | Phe | Glu | Arg | Asp | Ile | Tyr | His | Glu | Lys | Phe | Ile | |
| | | 1450 | | | | | 1455 | | | | | 1460 | | | | |
| tcg | gcg | gcc | gac | gcg | caa | cag | acg | cgc | agc | ccg | ctg | ttc | cgg | cgg | gtg | 4871 |
| Ser | Ala | Ala | Asp | Ala | Gln | Gln | Thr | Arg | Ser | Pro | Leu | Phe | Arg | Arg | Val | |
| | 1465 | | | | | 1470 | | | | | 1475 | | | | | |
| tgac | atg | gac | gcg | ggc | cgc | gta | tgc | ggg | acg | gtc | acg | atc | gcg | cag | acc | 4920 |
| | Met | Asp | Ala | Gly | Arg | Val | Cys | Gly | Thr | Val | Thr | Ile | Ala | Gln | Thr | |
| | 1480 | | | | | 1485 | | | | | 1490 | | | | | |
| gac | gag | cgc | tat | gcg | tgc | gtg | tcc | ggc | gag | tcg | ctg | ctg | gcc | ggc | atg | 4968 |
| Asp | Glu | Arg | Tyr | Ala | Cys | Val | Ser | Gly | Glu | Ser | Leu | Leu | Ala | Gly | Met | |
| | 1495 | | | | 1500 | | | | | 1505 | | | | | | |
| gcg | aaa | ctc | ggc | cgg | cgc | ggc | att | ccg | gtc | ggc | tgc | ctg | aac | ggc | ggg | 5016 |
| Ala | Lys | Leu | Gly | Arg | Arg | Gly | Ile | Pro | Val | Gly | Cys | Leu | Asn | Gly | Gly | |
| 1510 | | | | 1515 | | | | 1520 | | | | | | 1525 | | |
| tgc | ggc | gtg | tgc | aag | gtg | cgc | gtg | ctg | cgc | ggt | gcg | gtg | cgc | aag | ctc | 5064 |
| Cys | Gly | Val | Cys | Lys | Val | Arg | Val | Leu | Arg | Gly | Ala | Val | Arg | Lys | Leu | |
| | | | 1530 | | | | 1535 | | | | | | 1540 | | | |
| ggg | ccg | atc | agc | cgt | gcc | cat | gtg | agc | gcg | gaa | gaa | gag | aac | gac | ggc | 5112 |
| Gly | Pro | Ile | Ser | Arg | Ala | His | Val | Ser | Ala | Glu | Glu | Glu | Asn | Asp | Gly | |
| | | 1545 | | | | | 1550 | | | | | 1555 | | | | |
| tac | gcg | ctt | gcg | tgc | cgc | gtc | gtg | ccg | gac | ggc | gac | gtc | gaa | ctc | gaa | 5160 |
| Tyr | Ala | Leu | Ala | Cys | Arg | Val | Val | Pro | Asp | Gly | Asp | Val | Glu | Leu | Glu | |
| | 1560 | | | | | 1565 | | | | | 1570 | | | | | |
| gtg | gcc | ggc | cgg | ctc | agg | aag | ccg | ttc | ttc | tgc | ggc | atg | gca | tgt | gcc | 5208 |
| Val | Ala | Gly | Arg | Leu | Arg | Lys | Pro | Phe | Phe | Cys | Gly | Met | Ala | Cys | Ala | |
| | 1575 | | | | 1580 | | | | | 1585 | | | | | | |

ggc acg gcg gcg atc aac aag taaccaggag gagactcacc atgggtgtga 5259
 Gly Thr Ala Ala Ile Asn Lys
 1590 1595

tgcgtattgg tcatgtcagt ctgaaggtga tggacatgga agcggcgctg cgtcattacg 5319
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 Leu Ser Ile Gly Gly Ala Pro Glu Leu Cys Val Glu Leu Thr Leu Ser
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 Pro Ala Ala Phe Asp Ala Phe Cys Arg Glu Gln Gln Val Thr Arg Leu
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 Asp Val Glu Ala Asn Pro
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 <223> TomL polypeptide

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 35 40 45
 Arg Pro Thr Trp Asp Pro Asp Tyr Glu Ile Phe Asp Pro Ser Arg Ser
 50 55 60
 Ala Ile Arg Met Ala Asn Trp Tyr Ala Leu Lys Asp Pro Arg Gln Phe
 65 70 75 80
 Tyr Tyr Ala Ser Trp Ala Thr Thr Arg Ala Arg Gln Gln Asp Ala Met
 85 90 95
 Glu Ser Asn Phe Glu Phe Val Glu Ser Arg Arg Met Ile Gly Leu Met
 100 105 110
 Arg Asp Asp Val Ala Ala Arg Ala Leu Asp Val Leu Val Pro Leu Arg
 115 120 125
 His Ala Ala Trp Gly Ala Asn Met Asn Asn Ala Gln Ile Cys Ala Leu
 130 135 140
 Gly Tyr Gly Thr Val Phe Thr Ala Pro Ala Met Phe His Ala Met Asp
 145 150 155 160
 Asn Leu Gly Val Ala Gln Tyr Leu Thr Arg Leu Ala Leu Ala Met Ala
 165 170 175
 Glu Pro Asp Val Leu Glu Ala Ala Lys Ala Thr Trp Thr Arg Asp Ala
 180 185 190
 Ala Trp Gln Pro Leu Arg Arg Tyr Val Glu Asp Thr Leu Val Val Ala
 195 200 205
 Asp Pro Val Glu Leu Phe Ile Ala Gln Asn Leu Ala Leu Asp Gly Leu
 210 215 220
 Leu Tyr Pro Leu Val Tyr Asp Arg Phe Val Asp Glu Arg Ile Ala Leu
 225 230 235 240
 Glu Gly Gly Ser Ala Val Ala Met Leu Thr Ala Phe Met Pro Glu Trp
 245 250 255
 His Thr Glu Ser Asn Arg Trp Ile Asp Ala Val Val Lys Thr Met Ala
 260 265 270

all
 cont

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Glu | Ser | Asp | Asp | Asn | Arg | Ala | Leu | Leu | Ala | Arg | Trp | Thr | Arg | Asp |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Trp | Ser | Ala | Arg | Ala | Glu | Ala | Ala | Leu | Ala | Pro | Val | Ala | Ala | Arg | Ala |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Leu | Gln | Asp | Ala | Gly | Arg | Ala | Ala | Leu | Asp | Glu | Val | Arg | Glu | Gln | Phe |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| His | Ala | Arg | Ala | Ala | Arg | Leu | Gly | Ile | Ala | Leu | | | | | |
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| Met | Ser | Asn | Val | Phe | Ile | Ala | Phe | Gln | Ala | Asn | Glu | Asp | Ser | Arg | Pro |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ile | Val | Asp | Ala | Ile | Val | Ala | Asp | Asn | Pro | Arg | Ala | Val | Val | Val | Glu |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ser | Pro | Gly | Met | Val | Lys | Ile | Asp | Ala | Pro | Asp | Arg | Leu | Thr | Ile | Arg |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Arg | Glu | Thr | Ile | Glu | Glu | Leu | Thr | Gly | Thr | Arg | Phe | Asp | Leu | Gln | Gln |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Leu | Gln | Val | Asn | Leu | Ile | Thr | Leu | Ser | Gly | His | Ile | Asp | Glu | Asp | Asp |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Asp | Glu | Phe | Thr | Leu | Ser | Trp | Ser | His | | | | | | | |
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a!
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| Met | Asp | Thr | Pro | Thr | Leu | Lys | Lys | Lys | Leu | Gly | Leu | Lys | Asp | Arg | Tyr |
| 1 | | | | | 5 | | | | 10 | | | | | 15 | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ala | Ala | Met | Thr | Arg | Gly | Leu | Gly | Trp | Glu | Thr | Thr | Tyr | Gln | Pro | Met | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Asp | Lys | Val | Phe | Pro | Tyr | Asp | Arg | Tyr | Glu | Gly | Ile | Lys | Ile | His | Asp | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Trp | Asp | Lys | Trp | Val | Asp | Pro | Phe | Arg | Leu | Thr | Met | Asp | Ala | Tyr | Trp | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Lys | Tyr | Gln | Gly | Glu | Lys | Glu | Lys | Lys | Leu | Tyr | Ala | Val | Ile | Asp | Ala | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| Phe | Thr | Gln | Asn | Asn | Ala | Phe | Leu | Gly | Val | Ser | Asp | Ala | Arg | Tyr | Ile | |
| | | | 85 | | | | | | 90 | | | | | 95 | | |
| Asn | Ala | Leu | Lys | Leu | Phe | Leu | Gln | Gly | Val | Thr | Pro | Leu | Glu | Tyr | Leu | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Ala | His | Arg | Gly | Phe | Ala | His | Val | Gly | Arg | His | Phe | Thr | Gly | Glu | Gly | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Ala | Arg | Ile | Ala | Cys | Gln | Met | Gln | Ser | Ile | Asp | Glu | Leu | Arg | His | Tyr | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Gln | Thr | Glu | Thr | His | Ala | Met | Ser | Thr | Tyr | Asn | Lys | Phe | Phe | Asn | Gly | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Phe | His | His | Ser | Asn | Gln | Trp | Phe | Asp | Arg | Val | Trp | Tyr | Leu | Ser | Val | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Pro | Lys | Ser | Phe | Phe | Glu | Asp | Ala | Tyr | Ser | Ser | Gly | Pro | Phe | Glu | Phe | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Leu | Thr | Ala | Val | Ser | Phe | Ser | Phe | Glu | Tyr | Val | Leu | Thr | Asn | Leu | Leu | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Phe | Val | Pro | Phe | Met | Ser | Gly | Ala | Ala | Tyr | Asn | Gly | Asp | Met | Ser | Thr | |
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| Val | Thr | Phe | Gly | Phe | Ser | Ala | Gln | Ser | Asp | Glu | Ser | Arg | His | Met | Thr | |
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| Leu | Gly | Ile | Glu | Cys | Ile | Lys | Phe | Leu | Leu | Glu | Gln | Asp | Pro | Asp | Asn | |
| | | | | 245 | | | | | 250 | | | | | 255 | | |
| Val | Pro | Ile | Val | Gln | Arg | Trp | Ile | Asp | Lys | Trp | Phe | Trp | Arg | Gly | Tyr | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| Arg | Leu | Leu | Thr | Leu | Val | Ala | Met | Met | Met | Asp | Tyr | Met | Gln | Pro | Lys | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |
| Arg | Val | Met | Ser | Trp | Arg | Glu | Ser | Trp | Glu | Met | Tyr | Ala | Glu | Gln | Asn | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| Gly | Gly | Ala | Leu | Phe | Lys | Asp | Leu | Ala | Arg | Tyr | Gly | Ile | Arg | Glu | Pro | |
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| Lys | Gly | Trp | Gln | Asp | Ala | Cys | Glu | Gly | Lys | Asp | His | Ile | Ser | His | Gln | |
| | | | | 325 | | | | | 330 | | | | | 335 | | |
| Ala | Trp | Ser | Thr | Phe | Tyr | Gly | Phe | Asn | Ala | Ala | Ser | Ala | Phe | His | Thr | |
| | | | 340 | | | | | 345 | | | | | 350 | | | |
| Trp | Val | Pro | Thr | Glu | Asp | Glu | Met | Gly | Trp | Leu | Ser | Ala | Lys | Tyr | Pro | |
| | | 355 | | | | | 360 | | | | | 365 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Ser | Phe | Asp | Arg | Tyr | Tyr | Arg | Pro | Arg | Phe | Asp | His | Trp | Gly | Glu |
| 370 | | | | | | 375 | | | | | 380 | | | | |
| Gln | Ala | Arg | Ala | Gly | Asn | Arg | Phe | Tyr | Met | Lys | Thr | Leu | Pro | Met | Leu |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Cys | Gln | Thr | Cys | Gln | Ile | Pro | Met | Leu | Phe | Thr | Glu | Pro | Gly | Asn | Pro |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Thr | Lys | Ile | Gly | Ala | Arg | Glu | Ser | Asn | Tyr | Leu | Gly | Asn | Lys | Phe | His |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Phe | Cys | Ser | Asp | His | Cys | Lys | Asp | Ile | Phe | Asp | His | Glu | Pro | Gln | Lys |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Tyr | Val | Gln | Ala | Trp | Leu | Pro | Val | His | Gln | Ile | His | Gln | Gly | Asn | Cys |
| 450 | | | | | | 455 | | | | | 460 | | | | |
| Phe | Pro | Pro | Asp | Ala | Asp | Pro | Gly | Ala | Glu | Gly | Phe | Asp | Pro | Leu | Ala |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Ala | Val | Leu | Asp | Tyr | Tyr | Ala | Val | Thr | Met | Gly | Arg | Asp | Asn | Leu | Asp |
| | | | 485 | | | | | | 490 | | | | | 495 | |
| Phe | Asp | Gly | Ser | Glu | Asp | Gln | Lys | Asn | Phe | Ala | Ala | Trp | Arg | Gly | Gln |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Ala | Thr | Arg | Asn | | | | | | | | | | | | |
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21
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 <213> Burkholderia cepacia

<220>
 <223> TomO polypeptide

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| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Val | Glu | Lys | Phe | Pro | Ala | Pro | Leu | Leu | Tyr | Val | Cys | Trp | Glu | Asn | His |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Met | Phe | Pro | Ala | Pro | Phe | Cys | Leu | Pro | Leu | Pro | Pro | Asp | Met | Pro |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Phe | Gly | Ala | Leu | Ala | Gly | Asp | Val | Leu | Pro | Pro | Val | Tyr | Gly | Tyr | His |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Pro | Asp | Phe | Ala | Lys | Ile | Asp | Trp | Asp | Arg | Val | Glu | Trp | Phe | Arg | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gly | Glu | Pro | Trp | Ala | Pro | Asp | Pro | Ala | Lys | Ser | Leu | Ala | Gly | Asn | Gly |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Leu | Gly | His | Lys | Asp | Leu | Ile | Ser | Phe | Arg | Thr | Pro | Gly | Leu | Asp | Gly |

Leu Gly Gly Ala Ser Phe
115

105

110

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<220>
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Ile Pro His Ala Cys Cys His Gly Leu Cys Gly Thr Cys Lys Val Ala
35 40 45
Val Leu Asp Gly Glu Thr Asp Pro Gly Asp Ala Asn Pro Phe Ala Leu
50 55 60
Met Asp Phe Glu Arg Glu Glu Gly Lys Ala Leu Ala Cys Cys Ala Thr
65 70 75 80
Leu Gln Ala Asp Thr Val Ile Glu Ala Asp Val Asp Glu Glu Pro Asp
85 90 95
Ala Glu Ile Ile Pro Val Arg Asp Phe Ala Ala Asp Val Thr Arg Ile
100 105 110
Glu Gln Leu Thr Pro Thr Ile Lys Ser Ile Arg Leu Lys Leu Ser Gln
115 120 125
Pro Ile Arg Phe Gln Ala Gly Gln Tyr Val Gln Leu Glu Ile Pro Gly
130 135 140
Leu Gly Gln Ser Arg Ala Phe Ser Ile Ala Asn Ala Pro Ala Asp Val
145 150 155 160
Ala Ala Thr Gly Glu Ile Glu Leu Asn Val Arg Gln Val Pro Gly Gly
165 170 175
Leu Gly Thr Gly Tyr Leu His Glu Gln Leu Ala Thr Gly Glu Arg Val
180 185 190
Arg Leu Ser Gly Pro Tyr Gly Arg Phe Phe Val Arg Arg Ser Ala Ala
195 200 205
Arg Pro Met Ile Phe Met Ala Gly Gly Ser Gly Leu Ser Ser Pro Arg
210 215 220
Ser Met Ile Ala Asp Leu Leu Ala Ser Gly Val Thr Ala Pro Ile Thr
225 230 235 240

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Val | Tyr | Gly | Gln | Arg | Ser | Ala | Gln | Glu | Leu | Tyr | Tyr | His | Asp | Glu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Phe | Arg | Ala | Leu | Ala | Glu | Arg | His | Pro | Asn | Phe | Thr | Tyr | Val | Pro | Ala |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Leu | Ser | Glu | Gly | Ala | Pro | His | Ala | Gly | Gly | Asp | Val | Ala | Gln | Gly | Phe |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Val | His | Asp | Val | Ala | Lys | Ala | His | Phe | Gly | Gly | Asp | Phe | Ser | Gly | His |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Gln | Ala | Tyr | Leu | Cys | Gly | Pro | Pro | Ala | Met | Ile | Asp | Ala | Cys | Ile | Thr |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Thr | Leu | Met | Gln | Gly | Arg | Leu | Phe | Glu | Arg | Asp | Ile | Tyr | His | Glu | Lys |
| | | | 325 | | | | | 330 | | | | | | 335 | |
| Phe | Ile | Ser | Ala | Ala | Asp | Ala | Gln | Gln | Thr | Arg | Ser | Pro | Leu | Phe | Arg |
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Arg Val

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<220>

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Ala | Gly | Arg | Val | Cys | Gly | Thr | Val | Thr | Ile | Ala | Gln | Thr | Asp |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | |
| Glu | Arg | Tyr | Ala | Cys | Val | Ser | Gly | Glu | Ser | Leu | Leu | Ala | Gly | Met | Ala |
| | | 20 | | | | | 25 | | | | | 30 | | | |
| Lys | Leu | Gly | Arg | Arg | Gly | Ile | Pro | Val | Gly | Cys | Leu | Asn | Gly | Gly | Cys |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Gly | Val | Cys | Lys | Val | Arg | Val | Leu | Arg | Gly | Ala | Val | Arg | Lys | Leu | Gly |
| | 50 | | | | 55 | | | | 60 | | | | | | |
| Pro | Ile | Ser | Arg | Ala | His | Val | Ser | Ala | Glu | Glu | Glu | Asn | Asp | Gly | Tyr |
| 65 | | | | | 70 | | | | 75 | | | | | 80 | |
| Ala | Leu | Ala | Cys | Arg | Val | Val | Pro | Asp | Gly | Asp | Val | Glu | Leu | Glu | Val |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| Ala | Gly | Arg | Leu | Arg | Lys | Pro | Phe | Phe | Cys | Gly | Met | Ala | Cys | Ala | Gly |
| | | | 100 | | | | | 105 | | | | | 110 | | |
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